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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/664,332	09/18/2000	Noriya Hayashi	001195	4422

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24
EXAMINER

SELLERS, ROBERT E

ART UNIT

PAPER NUMBER

1712

DATE MAILED: 07/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/664,332

Applicant(s)

HAYASHI, NORIYA

Examiner

Robert Sellers

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6-10, 12, 17-19 and 21-28 is/are pending in the application.
- 4a) Of the above claim(s) 9, 17-19, 21 and 23-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-8, 10, 12, 22, 27 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 1712

Claims 9, 17-19, 21 and 23-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 8.

The text of section 103(a) of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 6-8, 10, 12, 22, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamazu et al., Buchwalter et al., Starkey and Green '592 in view of Green et al. '938.

Ohnishi et al. is withdrawn due to the lack of recitation of the claimed anhydride as the curing agent. Otherwise, the rejection is maintained for the reasons of record set forth in the previous Office actions. The arguments filed July 16, 2003 have been considered but are unpersuasive.

Hamazu et al. and Green '592 disclose a combination of a photopolymerization initiator and an anhydride curing agent. The claimed amount of from 0.3-1.4 mole of curing agent per mole of photopolymerization resin is not recited.

Art Unit: 1712

Buchwalter et al. (col. 8, Example 1) shows a blend of 1.8 parts by weight of acetal diepoxide (i.e. acetaldehyde bis(3,4-epoxycyclohexylmethyl)acetal according to col. 3, lines 13-15), 0.91 part by weight of hexahydrophthalic anhydride and a photoinitiator such as the disclosed sulfonium salt (col. 3, line 22). The molar quantity of anhydride is $0.91 \div 154.17 \text{ g/mole} = 0.0059 \text{ mole}$. The molar amount of diepoxide is $1.8 \div 283 \text{ g/mole} = 0.0064 \text{ mole}$. The molar ratio of curing agent per mole of photopolymerization resin is $0.0059 \div 0.0064 = 0.93:1$ which is within the claimed range.

Starkey espouses as much as 10 parts by weight (col. 21, lines 12-19) of a thermohardening catalyst such as the elected species of maleic anhydride per 100 parts by weight of an epoxy resin such as the elected species of 3,4-epoxycyclohexylmethyl-3,4-epoxycyclohexane carboxylate exhibited in Examples 2 (cols. 21-22) and 5 (col. 23) along with an aromatic sulfonium salt. The molar amount of maleic anhydride is $10 \div 98.6 \text{ g/mole} = 0.10 \text{ mole}$. The molar quantity of the cycloaliphatic diepoxide is $100 \div 316 = 0.316 \text{ mole}$. The molar ratio of curing agent per mole of photopolymerization resin is $0.10 \div 0.316 = 0.32:1$ which is within the claimed parameters.

It would have been obvious to employ the anhydride curing agent of Hamazu et al. and Green '592 within the molar ratios of Starkey and Buchwalter et al. of from 0.32:1 to 0.93:1 in order to complete the curing of the epoxy resin and to attain sufficient strength without crystal precipitation or decreased stability (Starkey, col. 21, lines 17-23).

Art Unit: 1712

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

(703) 308-2399 (Fax no. (703) 872-9311)
Monday to Friday from 9:30 to 6:00 EST



Robert Sellers
Primary Examiner
Art Unit 1712

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7/22/03